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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,539	01/23/2001	Steven Adler-Golden	SPSC/001/US	2985

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Brian M. Dingman
Mirick, O'Connell, DeMallie & Lougee, LLP
100 Front Street
Worcester, MA 01608-1477

EXAMINER

GUTIERREZ, ANTHONY

ART UNIT PAPER NUMBER

2857

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/767,539	Applicant(s) ADLER-GOLDEN ET AL.	
	Examiner Anthony Gutierrez	Art Unit 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> |

DETAILED ACTION

Claim Objections

1. Claim 36 recites the limitation "the number of sets" in the first line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The Examiner has looked to the Specification of the instant application for support of the limitations of this claim, the claim not having been originally filed.

The Examiner has found support for aspects of the claim on page 18, which describes an extension of an earlier described visibility retrieval method, including a multiplicity (interpreted by the Examiner to mean more than one) of wavelength bandpasses, ratios and aerosol types.

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The Examiner, however, has not found support in the original disclosure, with respect to the limitation "the number of specific wavelength bands is greater than two".

Furthermore, the claim recites a limitation "by comparing...**both** the corrected image visibility value **and** the aerosol property value or values or type **are resolved**".

The Examiner understands that this claim is reflective of an embodiment that is an extension of the earlier described visibility retrieval method, and therefore believes that the step of resolving a corrected image visibility value "by comparing the determined surface reflectances to the predefined ratio of reflectances" is implied by the Applicant's disclosure, the Examiner does not feel the same for the step of resolving the aerosol property value or values or aerosol type **themselves** "by comparing the determined surface reflectances to the predefined ratio of reflectances", as no earlier steps of resolving the property value, values, or type were addressed previously, only resolving the visibility value **for** each property value, or values, or type".

4. Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The claim recites the step of resolving "the aerosol property value or values or aerosol type" by "comparing the determined surface reluctances to the predefined ratios of reflectances".

As the Examiner has addressed above, he does not find a proper written description of this feature of the Applicant's claimed invention in the Applicant's original disclosure. Therefore, unless it is maintained that this is a step that is obviously well known in the art, the Examiner does not find support in the Applicant's disclosure to enable one skilled in the art to perform this step.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-5, 7, and 36 are rejected under 35 U.S.C. 102(a) as being anticipated by the paper "Atmospheric Correction for Short-wave Spectral Imagery Based on Modtran4" to Adler-Golden et al. (1999).

As to claim 1, Adler-Golden et al. discloses an improved method of correcting for atmospheric effects on a remote image of the Earth's surface taken from above, wherein the image comprises a number of images of the same scene each including a large number of pixels, each at a different wavelength band, and including infrared through visible wavelengths (Title,

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Abstract, Introduction, and Aerosol Retrieval), comprising: providing a radiation transport model that relates spectral radiance to spectral reflectance via a set of parameters (Methodology, fourth paragraph); providing a discrete number of trial aerosol visibility values for at least one of one or both of trial aerosol property values and aerosol types; using the radiation transport model to calculate the model parameter values for each of the trial aerosol visibility values (Aerosol Retrieval, first and second paragraphs where the LUT (look-up table) is used as the radiation transport model); selecting image pixels having a one or more presumed, predefined ratios of reflectance's among two or more specific wavelength bands (the calibration panels); using the radiation transport model parameters to determine the surface reflectance for the selected image pixels for each of the specific wavelength bands for each combination of trial visibility value and trial aerosol property value or values, or aerosol type (Aerosol Retrieval, third and last paragraph); comparing the determined surface reflectance's to the predefined ratio of reflectances; and resolving from the comparison a corrected image visibility value for each trial aerosol property value or values or aerosol type (Figure 2, which shows a comparison of data points that are either uncorrected or adjacency-corrected at two different wavelength values).

As to claims 2 and 3, Adler-Golden et al. further discloses using the radiation transport model to calculate the model parameter values includes performing calculations for a plurality of geometric conditions of solar illumination and sensor viewing, storing the calculation results, and interpolating the stored results to the specific geometric conditions that apply to the image

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being analyzed (Methodology, second paragraph and Aerosol Retrieval, second paragraph, last line).

As to claim 4, Adler-Golden et al. further discloses using the radiation transport model to calculate the model parameter values includes performing calculations of the radiance from the surface that is scattered into the sensor by weighting the spectra from different parts of the surface according to their contributions to each pixel (Methodology, third and fourth paragraphs).

As to claim 5, Adler-Golden et al. further disclose that the radiation transport model includes MODTRAN (Title, Abstract).

As to claim 7, Adler-Golden et al. further implies that the viewing angles can be off-nadir (Methodology, second paragraph) by disclosing that viewing and solar angles are used in the method. Off-nadir angles are implied because if there were only one viewing or solar angle, it might be limited to nadir, but if there is more than one (plural) then one must be off-nadir.

As to claim 36, Adler-Golden et al. further discloses the concept of accounting for spectral dependencies and the different scale height and phase function that apply to Rayleigh scattering (Methodology, fourth paragraph), as well as multiple scattering algorithms (Validation of Reflectance Spectrum Retrievals, third paragraph) and the plan to upgrade MODTRAN4 to include other atmospherically important collision-induced spectral features (Validation of Reflectance Spectrum Retrievals, final paragraph).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the paper "Atmospheric Correction for Short-wave Spectral Imagery Based on Modtran4" to Adler-Golden et al. (1999), in view of Barnes (US Patent 6,422,508 B1).

Adler-Golden et al. discloses the use of spectral imaging sensors for remotely sensed spectral imagery of the earth's surface (Introduction, first paragraph) and further implies the use of angles that are off-nadir (Methodology, second paragraph) by disclosing that viewing and solar angles are used in the method. Off-nadir angles are implied because if there were only one viewing or solar angle, it might be limited to nadir, but if there is more than one (plural) then one must be off-nadir.

Adler-Golden et al. does not specifically disclose that the sensor viewing angle is nadir.

Barnes, however, discloses a method for hyperspectral imaging that incorporates specifically both overhead (or nadir) and off-nadir sensor angles (col. 1, lines 15-48, and col. 3, lines 39-44). Barnes teaches that conventional methods are limited to nadir or "straight down" viewing (col. 4, line 61-col. 5, line

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4), but the method of invention benefits by extending the angle to include off-nadir angles to increase the cross-sectional area of the sample set (col. 2, lines 46-50).

It therefore would have been obvious to one of ordinary skill in the art at the time of invention to apply the method of Adler-Golden et al. not only to off-nadir scanning, but also specifically to nadir scanning, since it would increase the cross-sectional area under survey in a combined overhead/off-nadir scan as opposed to off-nadir scanning alone, and since it would allow for other benefits (independent of increased scan angle benefits) that are obtained by other aspects of the method of Adler-Golden et al., when applied in a conventional fixed nadir scanning system, the conventional scanning system being readily available and familiar to one skilled in the art, thereby increasing the applicability of the method of.

Inventorship

9. In view of the papers filed 11/8/04, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by deleting Laila Jeong, Clark Allred, and James Chetwynd, Jr. from the list of inventors.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

Response to Amendment

10. The declaration under 37 CFR 1.132 filed 11/8/04 is sufficient to overcome the rejection of claims 1-7 and 36 made under 35 U.S.C. 102(e) and 35 U.S.C. 103(a), with respect to Holzer-Popp et al. (United States Patent: US 6,484,099 B1).

Response to Arguments

11. Applicant's arguments with respect to claims 1-7, and 36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

United States Patent: US 6,724,931 B1 to Hsu, teaches a method for extracting objects from an image using a primitive image map.

United States Patent: US 6,356,646 B1 to Spencer, teaches a method for creating thematic maps using segmentation of ternary diagrams.

United States Patent: 6,111,640 to Hedman et al. teaches a method for hyperspectral imaging spectrometer spectral calibration.

United States Patent: 5,790,188 to Sun teaches a computer controlled 3-CCD camera, airborne, variable interference filter imaging spectrometer system.

United States Patent: 5,471,056, to Prelat, teaches an airborne scanner image spectrometer.

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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AG

Anthony Gutierrez

11/16/05

Marc S. Hoff
MARC S. HOFF

SUPERVISORY PATENT EXAMINER
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Continuation of Attachment(s) 6). Other: Decision Granting Petition Under 37 CFR 1.48 .



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Paper No. 20051129

Applicant : Adler-Golden et al.

Appl No.: 09/767,539

Filed: April 3, 2001

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: **DECISION GRANTING**
: **PETITION UNDER**
: **37 CFR 1.48**
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This decision is in response to the petition filed November 8, 2004 in the above-identified application. Petitioner requests that inventorship be corrected in accordance with 37 C.F.R. 1.48.

Specifically, the petition requests that Laila Jeong, Clark Allred, and James Chetwynd, Jr. be deleted as co-inventors.

The petition complies with 37 C.F.R. 1.48(a) in that (1) the desired inventorship change is set forth; (2) a statement is included from Ms. Jeong, Mr. Allred, and Mr. Chetwynd that the error occurred without deceptive intention on their parts; (3) a declaration from each actual inventor was provided; (4) the fee set forth in 37 CFR 1.17(i) was paid; and (5) written consent of the assignee was submitted.

The papers filed on November 8, 2004 thus fulfill the requirements set forth in 37 C.F.R. 1.48(a), and the petition is GRANTED.

Marc Hoff
Supervisory Patent Examiner, Art Unit 2857
Technology Center 2800

Brian M. Dingman
Mirick, O'Connell, DeMallie & Lougee, LLP
100 Front Street

Worcester , MA
01608-1477

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